

REMARKS

By the above amendment, claim 1 has been amended to incorporate the features of dependent claim 2 therein with claim 1 and the other independent claims being amended to clarify features of the present invention. Additionally, dependent claims 6, 7 and 14 have been amended in the manner suggested by the Examiner so as to overcome the informalities noted.

As to the rejection of claims 1 - 5, 8 - 12 and 16 - 18 under 35 USC 102(e) as being anticipated by Takada et al (6,639,215) and the rejection of claims 6 - 7 and 13 - 15 under 35 USC 103(a) as being unpatentable over Takada et al (6,639,215) in view of Bartram et al (6,537,382), such rejections are traversed insofar as they are applicable to the present claims and reconsideration and withdrawal of the rejections are respectfully requested.

With regard to the requirements to support a rejection under 35 USC 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not

only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Turning to the present invention and the features as now recited in each of independent claims 1, 16, 17 and 18, it is noted that the present invention relates to a method and apparatus for detecting chemical agents such as sarin (isopropyl methoylphosphonofluoridate) or soman (pinacolyl methylphosphonofluoridate) by using a mass spectrometer and APCI (atmospheric pressure chemical ionization) which is described at page 17, line 20 to page 18, line 2 of the specification. The present invention is directed to increasing a detection speed of chemical agents, decreasing a false alarm rate, pinning down the kinds of chemical agents and meeting specifications for unattended continuous monitoring equipment suitable for detection of sarin or soman and thereby overcoming the disadvantages of the prior art arrangements. More particularly, as described at pages 1 and 2 of the specification, in the prior art, gas or liquid chromatography which separates samples into separate components is utilized in connection with mass spectrometry and difficulties have been encountered in connection therewith. See, for example, Fig. 9 of Takada et al. The present invention eliminates the need for utilizing such a separation unit and by the present amendment, the claims have been amended to clarify the feature, as recited in claim 1, for example, of a sample introduction unit for introducing a test sample to an ion source without passing through a separation system, wherein the ion source positively ionizes the introduced sample by corona discharge to produce positive ions. That is, the present invention eliminates the utilization of a gas or liquid chromatograph, and utilizes an ion source for positively ionizing a test sample by corona discharge to produce positive ions with a mass spectrometer unit being provided for analyzing the mass of the positive ions from the

ion source, which is carried out by sensing signals from chemical agents to be detected as described at page 5 of the specification of this application.

The inventors of the present invention have determined that when targets to be detected are chemical agents, such as sarin or soman, if a field emission electron ionization ion source is used, such chemical agent is decomposed into many fragment ions. As a result, it becomes difficult to detect the chemical agent of the target, since there are many fragment ions. However, in accordance with the present invention, applicants have determined that atmospheric pressure chemical ionization, reduces the proportion of the sample decomposed into fragment ions as described at page 17, line 20 to page 18, line 8 of the specification and that the molecular ions of sarin or soman are likely to become positive ions as described at page 11 of the specification such that by avoiding the utilization of the separation system and positively ionizing the introduced sample by corona discharge to produce positive ions, utilizing a mass spectrometer in the manner set forth, increased detection speed with accuracy of detection can be obtained. Applicants submit that each of independent claims 1, 16, 17 and 18 recite the aforementioned features which are not disclosed or taught in the cited art as will become clear from the following discussion.

Turning to Takada et al, as shown in Figure 1 thereof, in an incinerator 1, exhaust gas produced by an incineration of waste 2 is exhausted through a flue 3 from a chimney stack 4 and exhaust gas is collected from the flue 3 and chimney stack 4 and introduced into a collector 5, wherein components are adsorbed by an absorber, and in a pre-treatment chamber 6, the components adsorbed by the absorber are extracted and concentrated and then a sample solution produced in the pretreatment region 6 is transferred to an ion source 9 as shown in Fig. 2. Figs. 9

and 10 shows configurations embodying a liquid chromatograph and a mass spectrometer and these embodiments generally provide for passing a test sample through a separation system, as described in the specification of this application prior to introduction into the ion source. Each of the independent claims 1, 16, 17 and 18 of this application have been amended to clarify the features that the test sample is introduced into the ion source without passing through a separation system, and applicants submit that the claims of this application patentably distinguish over Takada et al with respect to such feature. Furthermore, in accordance with the present invention, the ion source positively ionizes the sample by corona discharge to produce positive ions. While Takada et al discloses ionization, there is no disclosure or teaching of positive ionization for producing positive ions with the measurement being effected for the positive ions on the basis of the signal of measurement results derived from a chemical agent to be detected in the manner disclosed and claimed in the independent and dependent claims of this application. Applicants note that Takada et al does not disclose or suggest that the APCI reduces the proportion of the sample decomposed into fragment ions nor that positive ionization is effected in the manner recited in the claims of this application. Accordingly, applicants submit that independent claims 1, 16, 17 and 18, as amended, patentably distinguish over Takada et al in the sense of 35 USC 102 and 35 USC 103 and all claims should be considered allowable thereover.

With respect to the dependent claims, applicants note that Takada et al does not disclose detection of a chemical agent in the manner defined nor the values of m/z , as set forth, the specified chemical agent, the temperature of the ion source, or the drift of voltage as recited in the dependent claims of this application. Thus,

applicants submit that the claims patentably distinguish over Takada et al in the sense of 35 USC 102 and 35 USC 103.

With respect to the combination of Takada et al and Bartram et al, applicants submit that the Examiner has engaged in a hindsight reconstruction attempt utilizing the principle of "obvious to try" which is not the standard of 35 USC 103. See, IN re Fine, supra. Irrespective of whether or not Bartram et al discloses decontamination methods for toxic chemical agents including the chemical agents to be detected in accordance with the present invention, Bartram et al does not overcome the deficiencies of Takada et al, as pointed out above and is not directed to detection of the chemical agent, but rather a manner of decontamination of surfaces exposed to a chemical agent. As to the Examiner's contentions concerning inherency, hereagain, the Examiner has engaged in a hindsight reconstruction attempt, not based on the disclosure of the individual references. Thus, applicants submit that Bartram et al fails to overcome the deficiencies of Takada et al as pointed out above and all claims patentably distinguish over this proposed combination of references in the sense of 35 USC 103 such that all claims should be considered allowable thereover.

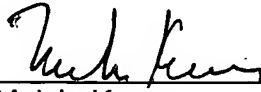
In view of the above amendments and remarks, applicants submit that all claims present in this application patentably distinguish over the cited art and should now be in condition for allowance. Accordingly, issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli,

Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.42983X00),
and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

A handwritten signature in dark ink, appearing to read 'Melvin Kraus', is written over a horizontal line.

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